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# COLUMBIA POINT

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## Feasibility Study FS-89

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FEASIBILITY SURVEY REPORT  
PROJECT NO. FS-89

COLUMBIA POINT AREA  
BOSTON REDEVELOPMENT AUTHORITY  
BOSTON, MASSACHUSETTS

JUNE 1964





FEASIBILITY SURVEY REPORT  
PROJECT NO. FS-89

BINDER NO.

COLUMBIA POINT AREA  
BOSTON REDEVELOPMENT AUTHORITY  
BOSTON, MASSACHUSETTS

SUBMISSION DATE

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TABLE OF CONTENTS

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1. Introduction
2. Summary of Conclusions
3. Assumptions in Carrying out the Study
4. Site Plan Studies and Staging
5. Investigations by Maurice A. Reidy, Consultant Engineer
  - 5-1 Soil and Topographic Conditions
  - 5-2 Foundation Problems
  - 5-3 Roads and Utilities
  - 5-4 Landscaping
  - 5-5 Further Filling
  - 5-6 Stability of the Shoreline and Harbor Bottom
  - 5-7 Water Pollution
  - 5-8 Underground Fires
  - 5-9 Rodent Control
6. Investigations by Robert Gladstone and Associates, Housing Market Consultants
7. Development Costs



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## 1. INTRODUCTION

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Columbia Point, like many parts of Boston, was originally largely tide land. Filling has occurred over a period of many years with a variety of materials. In recent years, fill has consisted of dump material.

The area encompassed by the Feasibility Study is about 400 acres and located on Boston's southern waterfront. One-third is developed, one-third vacant land, and the remaining third is underwater inside the pierhead line.

The area is within two miles of the central business district, has excellent access by subway and expressways and provides outstanding views of the surrounding harbor.

Despite these advantages, the Point itself is bleak and largely undeveloped.

Six thousand residents of the Columbia Point Housing Project are crowded into one 40 acre parcel. Adjacent to the housing project is a dump, an obsolete sewage pumping station, a church, a school, several small stores, and several other buildings unrelated to the Project.



The area is being considered for an urban renewal project because:

- (1) There is an urgent need to improve the living environment for the residents of the housing project. The Public Housing Administration and the Boston Housing Authority are very concerned to effect whatever improvements are necessary within the Project and to get assistance from the City and Redevelopment Authority in renewing and developing the entire Point.
- (2) Recent State legislation required that all dumping stop on Columbia Point. A sewage pumping station, constructed in 1867, will also be closed when new sewage facilities are completed by the Metropolitan District Commission in 1965. With the cessation of these two activities there is an opportunity at this time to plan for the full and best utilization of the Point.
- (3) Potentially Columbia Point is a suitable location for extensive new housing. Additional housing resources are needed in the City of Boston to accommodate persons displaced by urban renewal action in other parts of the City.
- (4) Site development factors, the isolated nature of the developable land, and the public's image of the area are such as to prevent private development of residential and





related uses deemed essential to balance and secure living qualities in the present housing project. It is also doubtful if private development of non-residential uses would occur without urban renewal.

The Feasibility Survey was undertaken to determine whether or not it is possible to carry out an urban renewal project which develops Columbia Point for housing and recreation facilities.

The feasibility of constructing housing rests primarily on two factors.

- (1) Whether or not the land is marketable for housing given the adverse environmental conditions.
- (2) Whether or not added development costs resulting from unstable soil conditions can be kept low enough to keep the housing marketable.

Investigations related to these two problems were undertaken by two consultants:

Maurice A. Reidy, Engineers, Boston

Robert Gladstone & Associates, Economic  
Consultants, Washington, D. C.



The findings of their investigations and a number of staff  
1  
studies are summarized in this report.

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<sup>1</sup>It was originally anticipated that borings would be made as part of the study. However, upon investigation, it was found that sufficient information already existed and that additional borings would have no influence on the overall findings.





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## 2. SUMMARY OF CONCLUSIONS

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- (1) Privately constructed housing is considered feasible if carried out as part of a renewal project. Renewal is necessary in order to minimize the costs of site preparation and site improvements that must be borne by the private developer. Because of the unstable soil conditions these costs are higher than normally experienced in residential areas. If carried entirely by the developer, they will increase his expenses to the point where the project is no longer feasible.
- (2) Soil conditions require all housing be constructed on piles or similar supports. This additional foundation cost must be carried by the developer and will require monthly charges approximately \$5.00/month higher than for comparable units without sub-soil problems. This increase is not considered great enough to make housing unmarketable.
- (3) Better access, extensive grading and park and recreational development must precede housing construction.
- (4) Any adverse effects of the public housing project on private housing construction can be overcome



provided the improvements listed in (3) are successfully carried out.



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### 3. ASSUMPTIONS IN CARRYING OUT THE FEASIBILITY STUDY

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The study was undertaken based on several assumptions:

- (1) Proposals for vacant land areas should be compatible with and acceptable to the two major present occupants of the area - Boston College High School and the Housing Project.
- (2) The most appropriate use for vacant, uncommitted land areas at the end of the Point is for middle income housing, park land and recreation. Such uses could take maximum advantage of the waterfront location and would be compatible with existing development. Residential development would reduce the isolation of the existing project and result in a much more diverse community - both in terms of the people living on the Point and in terms of the public and private facilities developed to support this larger community. It would also provide a major resource for relocation housing.

Recreational facilities should be of a regional nature and tie in with the existing development along the southern





shore of South Boston. Such development would add badly needed recreation facilities to the city.

Uses such as manufacturing or warehousing were considered to be less compatible and as being of less positive benefit to the housing project. Such uses also tend to prefer locations with frontage on major arteries such as Morrissey Boulevard and Southeast Expressway, where substantial light industrial and general commercial development has taken place in recent years.



Shoreline at the tip of Columbia Point.







Sewage pumping station — built in 1873 — to be abandoned in 1965 when new Metropolitan District Commission Facilities are completed.







Burned out warehouse on Mt. Vernon Street adjacent to Columbia Point Housing Project.







View of dump looking back towards the Columbia Point Housing Project and sewage pumping station.





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#### 4. SITE PLAN STUDIES AND STAGING

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A site plan was prepared based on preliminary submissions by the consultants, and then used as the basis for the consultants final recommendations. It is also used as the basis for the cost estimates used in Section 7.

The plan calls for 193 acres of new development. Additional fill is required in some areas. For the most part, however, this can be done with materials already on the site. Totals for each use are shown below (service streets are included with each use).

##### Proposed Development of Vacant & Tidal Areas

Residential	60.3 acres
Regional Recreation	64.2 acres
Commercial	2.5 acres
Public Elementary School and Playground	7.8 acres
Public High School	35.0 acres
Perimeter Parkway	<u>23.3 acres</u>
Total	193.1 acres












BOUNDARY AND PIERHEAD LINES CONTINUE STRAIGHT TO INTERSECTION



# EXISTING LAND USE AT COLUMBIA POINT

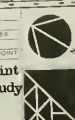
survey boundary

-  housing
-  commercial
-  institutional
-  privately owned land
-  city owned land
-  park or recreation
-  sewerage facilities

WELLS NEXT PLANS  
 PREPARED FOR THE CITY OF BOSTON  
 BY WELLS NEXT PLANS  
 100 STATE STREET, BOSTON, MASS. 02109  
 1984

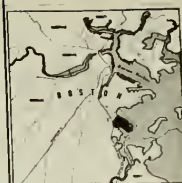
**Columbia Point  
Feasibility Study  
FS - 89**

ADDITIONAL DEVELOPMENT AUTHORITY













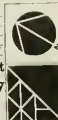
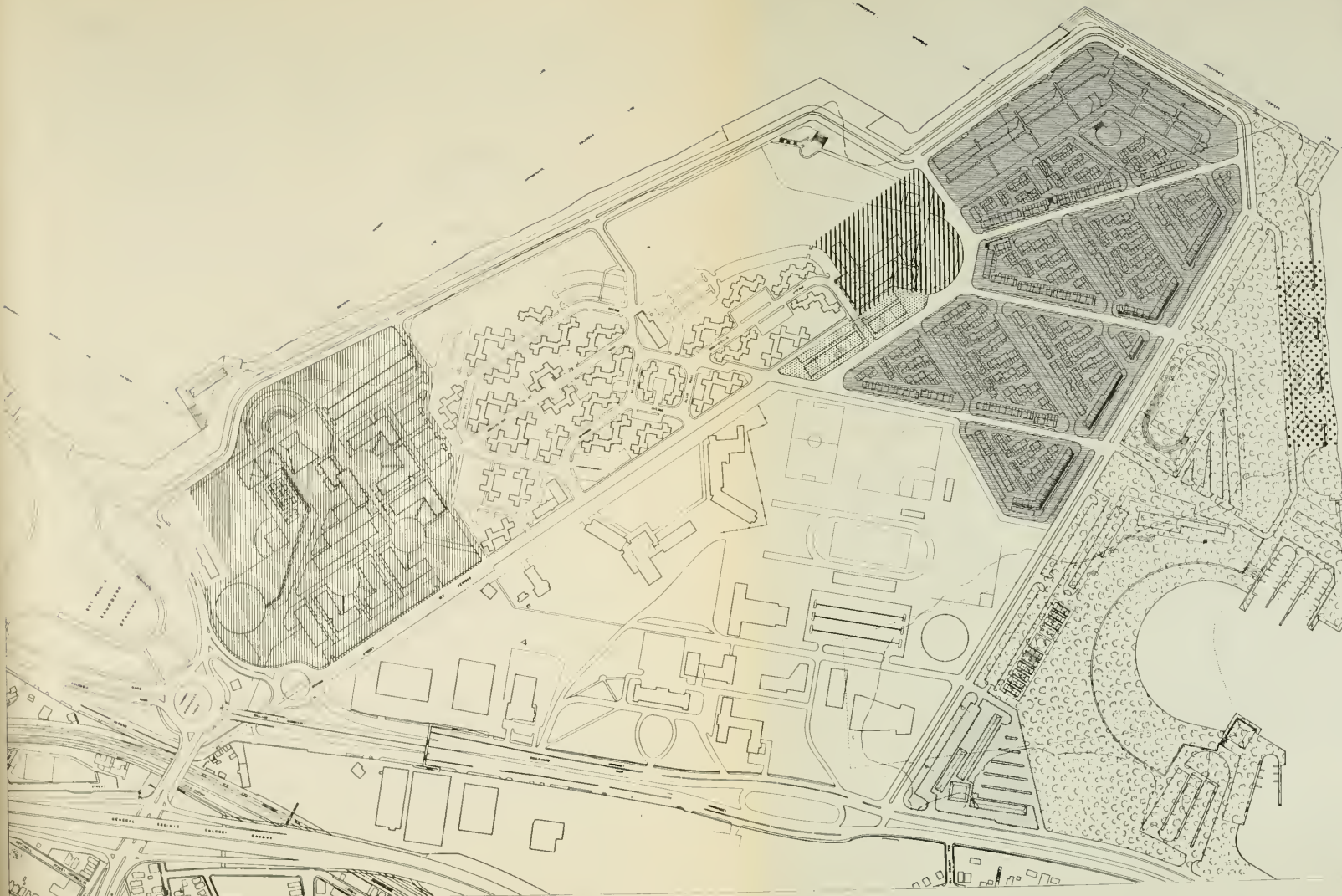




# PROPOSED DEVELOPMENT AT COLUMBIA POINT

-  housing
-  park or recreation
-  commercial recreation
-  mixed: housing, clubs, etc.
-  community center-school
-  high school
-  neighborhood shopping
- 

SCALE: 1" = 100' SEE FS-88  
 DRAWN BY: STANTON  
 CHECKED BY: STANTON  
 DATE: MAY 1988  
 PROJECT: COLUMBIA POINT  
 FS-88  
 COLUMBIA POINT  
 Feasibility Study  
 FS-88  
 BOSTON REDEVELOPMENT AUTHORITY



## HOUSING

Row houses, garden apartments and a number of seven story apartment buildings are proposed with approximately the following number of units of each type.

<u>Type of Unit</u>	<u>No. Proposed</u>
Row Housing	550
Garden Apartments	480
Seven story Apartments	<u>490</u>
Total	1,520

The plan assumes that ground elevation for housing is +18 which will eventually settle to 16 or 17. The apartment units would be located on the northern side of the site. This location provides a wide view of the harbor; the taller buildings would help to counteract the dominant image of the existing housing project.

## PAVED AREAS

Housing was developed on a super block scheme with all traffic and parking kept to the periphery of the blocks.

All parking on the site plan is assumed to be open and at grade level. There could, of course, be variations. The parking ratio is one space per dwelling unit, in keeping with standards of the City and the Federal Housing Administration for new residential areas in this type of location.





Three types of streets are proposed.

- (a) The perimeter road - for pleasure driving and access to the recreation and residential areas. It would ultimately be four lanes in width with space for parking on each side.
- (b) Collector streets - two lanes wide with parking allowed on both sides - pavement width = 40 feet.
- (c) Residential parking streets - used only for parking and access to adjacent properties - Pavement 30 feet in width.

#### COMMERCIAL DEVELOPMENT

A small commercial development of 2.5 acres is proposed for the present end of Mt. Vernon Street. In addition to several convenience stores space would also be available for such facilities as a Post Office Branch and church site.

#### ELEMENTARY SCHOOL

A development of this size can be expected to have 750 or more children between the first and eighth grade. A school to accommodate these children is proposed for a location next to the shopping facilities - between the new housing and the public housing project. The location in this area would make it possible to use some of the playfield space developed for the public housing project. Construction of the school should be planned in stages.



## PUBLIC HIGH SCHOOL

The 35 acre site at the intersection of Mt. Vernon Street and the Strandway has been proposed by the School Superintendent and the Boston Redevelopment Authority Staff as the location for the development of a new city-wide campus high school. A school of this type follows the recommendation of the comprehensive school plan, Boston Schools, 1962.

This site is ideally suited to this use and is one of the very few of sufficient size that is also centrally located and with good rapid transit service.

Location of the high school in this area will counteract the adverse visual image of the existing housing project as seen from Morrissey Boulevard-Southeast Expressway. It will also enhance the market for new housing in the area.

## RECREATION

The land use plan shows the construction of a major park and recreation area. Initial development would consist of the first two lanes of a four lane pleasure drive along the Point's perimeter, grading and planting of open areas, development of bathing facilities, and the stabilization of the shoreline. At a later time, more elaborate facilities, such as a fishing pier, tennis courts and boating facilities, a restaurant and other concessions could be added.



Along the southern edge of the new public park and recreational development, water-front properties could be disposed of to private individuals and clubs for beach and water related facilities.

Treatment of the shoreline would include a wide sand beach along the shore near Morrissey Boulevard with riprap throughout the remainder.



## STAGING

The sequence of development of the Point is critical to its success. Initial public investment in terms of better road access, treatment of the shoreline, and the development of recreation and park areas is essential and must be undertaken before any housing is constructed.

### STAGE 1

- (1) Acquisition or effective control of undeveloped areas.
- (2) Rough grading of the area and stabilization of the shoreline by riprap or other means.
- (3) Construction of the first two lanes of the perimeter pleasure drive.
- (4) Grading and planting of the park and recreation areas.
- (5) Development of the beach and bath house.
- (6) Construction of the High School.

### STAGE II

- (1) Construction of garden apartments and row housing .
- (2) Construction of supporting facilities including the elementary school and convenience stores.





### STAGE III

- (1) Completion of the housing, including the seven-story buildings and corresponding expansion of convenience stores and other supporting facilities.
- (2) Widening of the pleasure drive from two to four lanes.
- (3) Completion of the more specialized recreational facilities such as boating facilities, fishing pier, lookout points, etc.
- (4) Commercial recreation development such as private boating clubs, restaurants, etc.

Cost estimates presented at the end of the report include development through Stage II.



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## 5. INVESTIGATIONS BY MAURICE A REIDY, CONSULTING ENGINEER

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### 5-1 Soil and Topographic Conditions

(a) Soil Profile: A typical subsoil profile was developed based on an evaluation of the records of 518 boring tests.

Fill - Columbia Point has been used as a dump for many years. As a result extreme and unsystematic variations exist in this top layer. In many areas, the fill includes substantial amounts of rubbish, some of it organic, intermingled with partly consolidated deposits of earth and heavy rubble.

Peat - This layer, directly beneath the fill, is the uppermost stratum of natural material at the site and is usually found between elevation 0 and elevation +5. The peat is soft and somewhat spongy, with a texture which may vary from a mat of vegetative fibre to a smooth homogeneous fine silt. The stratum has a thickness which averages in the order of 7 or 8 feet, but may vary occasionally to 10 feet or more. The important property of the Peat stratum





# CHANGES IN SHORE LINE AT COLUMBIA POINT

- 1893  
land area
- 1951  
shoreline
- 1961  
shoreline







is its great compressibility under the action of superimposed loads which may produce subsidence of overlying materials equal to one-half or more of the original thickness of the Peat stratum. In addition, Peat is extremely erratic with respect to both amount and time-rate of settlement. Therefore, no consideration should be given to supporting any permanent structures by bearing on soils underlain by the Peat stratum.

#### The 'Crust'

Directly beneath the Peat is a layer of soil which is of great importance to Boston foundations generally. It is the first material encountered below the surface having sufficient strength for the support of building foundations. More important is the fact that it has considerably more strength than the Soft Blue Clay soil which is frequently found below it.

#### Soft Blue Clay

Below the crust is a layer of blue clay ranging from 0 to 175 feet deep. Except for very tall buildings



and a few other specialized cases, piles or other foundation supports do not need to penetrate this layer to the lower bearing materials.

(b) Topographic Conditions

Variations in elevation exist because of variations in the depth of fill. In some parts of the survey area, the land is underwater, in others, it rises to an elevation of 38 feet. Developed sites have been graded to an elevation of +18 although some areas have subsided as much as three or four feet. Based on the data supplied by Reidy, it is concluded that the grade at which vacant land areas are developed for housing and other improvements is an extremely important factor in staging of the project and in calculating costs. The reasons for this are as follows:

- (1) The higher the finished grade the longer must be the pile foundations. This will increase the cost of the foundations - a cost that must be borne by the developer. (Calculations for elevation +18 and +28 are covered in Section 5-2.) If the area is developed using renewal funds, reduction of the grade to +18 can be









carried out as a project expense. The developer's foundation costs will then be at a minimum.

- (2) The higher the finished grade, the less material will there be to use in areas that must be filled. If the site is developed at +18, there is sufficient excess material in some portions of the dump to enable the entire plan to be developed without bringing in additional fill material. (Specialized material such as loam and gravel will still be required).
- (3) The higher the finished grade, the less will it be possible to sort the dump materials. Redistribution of the land above Grade 18 will also allow the material to be more carefully compacted. Future settlements will then take place much more evenly.
- (4) The higher the finished grade the more will be the total settlement. At the same time, material now above grade +18 (which has been in place from three to twenty years) has actually been of benefit to any future development by acting as a "pre-load" on the site.



A pre-load is defined as the placing of a temporary surcharge (usually excess fill) on top of compressible subsoils. It consolidates material such as the peat underneath and when removed the ground beneath does not rebound to its original condition. The pre-load thus anticipates any future load and speeds up the settlement caused by a lesser load.

By having the site pre-loaded, settlement around the buildings and the buckling of pavement and utilities will be minimized. In addition, if the site is developed at about Grade 18 some of the excess material can be moved to another location to act as a preload.

Based on the above analysis, most development should take place at Grade 18, an elevation safely above the highest tides. Initial construction should be on areas that have been filled and preloaded the longest, and areas filled more recently staged for later development. The proposed land use plan makes this possible.



## 5-2 Foundation Problems

The soil profile outlined above is typical of many areas within the Boston Basin such as the Back Bay and parts of the South End, except that the fill material is not of good quality. Therefore, in considering extra foundation costs, it should be recognized that these extra costs are not unique to Columbia Point.

Piles, caissons, or a matt foundation are required for all permanent buildings. Each type is now represented by one or more buildings in the Columbia Point Area. "Floating" buildings at surface elevations without such support is not feasible.

Extra foundation costs over and above an optimum condition have been calculated by Reidy for building construction at elevation +18 and +28. The figures shown below indicate the added cost of construction per square foot of floor space. (Square footage does not include basement area.)





Added Foundation Costs Per Square Foot of Floor Area

	<u>Cost per Square Foot</u>	
	<u>El. 18</u>	<u>El.28</u>
One story industrial	1.94	Add.29
Two story industrial	1.50	.29
Residential: 1 story frame, no base-		
ment	2.53	.63
1 story frame, w/base-		
ment	2.42	.74
2 story frame, no base-		
ment	1.38	.63
2 story frame, w/base-		
ment	1.26	.69
3 story garden apt.	.90	.37
seven story apt.	.90	--
15 story apt.	2.05	.15

Based on these figures, housing constructed on the Point should be two stories or more. The figures also indicate foundation costs are lowered if units are constructed with basements. This makes it possible to have some basement parking at very little additional expense.

Translation of the above costs into monthly rents will result in additional charges of approximately \$5.00 per month per unit. This increase is covered in more detail in Section 6.



### 5-3 Roads and Utilities

Roads and Utilities are affected by settlement just as buildings are, but in general to a less serious degree. On Columbia Point experience has shown that it will be necessary to give added support to some utility lines by using piles or caissons, or by excavating a trench, refilling it with compacted sand and gravel and installing the utility lines on this firm base. In some areas preloading and fill of reasonably good quality will make the additional support unnecessary.

The use of gravel trenches in the shape of an inverted cone has the greatest application because they will support both utilities and the roadway itself. Such a technique has been used very successfully at the Housing project.

The net costs of supporting all utilities except steam lines on piles or caissons is approximately \$50.00 per linear foot of street. The cost is about the same for gravel when supporting both the utilities and the street itself.

Costs itemized in Section 7 have assumed an added charge of \$50.00 per lineal foot of residential street (average pavement width 35 feet).

In areas where an adequate preload has produced pre-compression of the Peat and of the Fill, this added cost of



installing utilities can be appreciably reduced. In such areas, rigid supports need be provided only for steam and hot water distribution lines. If suitable flexible service connections are provided for the water, gas electric, telephone and storm drainage lines, these services will be given proper support by the precompressed fill.

However, for the deeper parts of the sanitary sewer system which lie within the Peat stratum and quite close to the Crust, a gravel support should be constructed.





#### 5-4 Landscaping

At present, the undeveloped areas of the Point are completely barren. An extensive landscaping program will be required to make the area habitable and attractive.

Experience at the Columbia Point Housing Project has shown that extra care is needed if results are to be successful as most of the original landscaping at the Project has not survived. Vandalism was only part of the problem. Inadequate soil preparation and cultivation also contributed to the lack of success.

As the soil in many parts of the site is full of glass, metal and other objects - and also lacks the necessary fertility and porosity to grow plant materials - a minimum topsoil blanket of 10 to 15 inches must be added. Some of this may be found from fill deposits on the site, but the top layer will probably have to be brought from off-site.

Some areas of fill are composed of highly permeable materials that will not retain water. As a result grass and young plants will dry out and die. This condition can be corrected when the site is graded by spreading the less permeable clays evenly prior to spreading the top soil. Trees of any size should have their planting pits lined with clay.



Landscaping costs will vary greatly according to how quickly results are desired and how large and how much plant material is used. They will also be influenced by how much topsoil can be found on site. Cost estimates used at the end of this report are based on the assumption that reasonably quick (two years) results are desired.



#### 5-5 Further Filling

To carry out the plan that has been outlined, it will not be necessary to bring in any large amounts of additional fill material (except for topsoil and other specialized materials) from outside the Columbia Point area, as much of the site has been covered to an elevation of 28 to 38 feet. By redistributing this excess material to low areas, the entire site can be developed.

If it proved desirable to further extend the development beyond that indicated on the site plan, it will be necessary to acquire additional fill from outside the Point. Dredging the harbor and using it for fill would not be desirable. The harbor bottom in the vicinity of Columbia Point consists of a deposit of soft organic bay mud about 5' in depth.





## 5-6 Stability of the Shoreline and Harbor Bottom

Reidy found that out to a certain distance from the shore, to a line which coincides roughly with the U. S. Pierhead Line, the harbor bottom is exposed as mudflats at mean low water. However, in spite of the extensive changes in the past in the edge of the solid land which has taken place in the past thirty years, the topography of the flats has remained quite constant.

The present shoreline along the north side is covered by rough riprap. Along the southern side it is exposed to wave action. Development of the Point will require some form of shoreline treatment along the entire length.

Reconnaissance by a staff member of the Corps of Engineers indicates that any sand beaches built on the north and east shores of the Point would probably require extensive groin protection plus a continuous program of artificial nourishment. (Replacement of sand, etc.) Therefore, it was recommended that any beach areas be planned around the southerly shores of the Point. This recommendation has been followed in the proposed development plan.

Construction of the beach will require sand fill to a depth of 2 or 3' as was done recently at Wollaston Beach. A concrete retaining wall should be provided as a support for



parking areas which would also define the edge of the beach.

The cost of riprap in place is estimated at \$120 a linear foot, the beach at \$310 a linear foot of shore front.



## 5-7 Water Pollution

Some sewage pollution now exists around Columbia Point due to a leak from the high level sewer that runs underwater from the Columbia Point Pumping Station to Moon Island. This will be corrected in 1965 when the M. D. C. new plant will be open. The cloudy appearance of the water in the area is principally the result of wave action on the mud flats at low tide.





#### 5-8 Underground Fires

Occasional outbreaks of underground fires have been experienced since the dump was closed in June of 1962. However, this is not considered to be a serious development problem. Control can be gained during the regrading of the site in preparation for development by placing a solid earth cover over any combustible material.



#### 5-9 Rodent Control

According to the authorities consulted, the rodent problem in the area is presently at a minimum and control has not been difficult. Any problem of rodents due to the past history of the area as a dump is not considered to be a development problem.



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6. Investigations by Robert Glacstone & Associates, Housing Market Consultants

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In determining whether or not it is feasible to construct housing on Columbia Point, the consultant had to answer two questions.

- (1) Whether or not the strong influence of the housing project on the environment could be overcome.
- (2) Whether subsoil conditions would so raise development costs as to make the project unmarketable.

In the professional judgement of the consultant, both adverse factors can be overcome. In regard to the first question, he states,

"The inherent advantages of the Columbia Point location - its access, view and relation to existing communities - combined with a carefully staged development program including construction of regional recreation facilities, waterside parkway, improved access as well as other supporting facilities provide the potential for a marketable program of new, privately financed housing construction."

He goes on to say that if this housing is constructed under 221 (d) 3 financing:





"A limited production under this program during the coming three to four year period - with less than 1,000 per year entering the market on the average - together with the rent scale realizable with submarket interest rates would make Columbia Point units of this type so highly competitive in our opinion that any stigma attached to the marketability of these units because of the existing housing project would be offset by the unique values made available."

In regard to the second question - whether soil conditions would so raise costs as to make the project unmarketable: It was pointed out previously that extra foundation requirements would have the effect of raising monthly rents by approximately \$5.75 over comparable developments without foundation problems. This figure is based on an assumed two-story and basement frame unit with average size of approximately 1,200 sq. ft. in floor area (not including basement). Piles would be 15-ton case in place concrete, 20 feet long and cut off at Grade 11. The cost of these, as calculated by Reidy comes to 1.26/sq. foot of floor space or \$1,512. per unit and was amortized over a 40 year period at the three and three-eighths per cent interest as available under the 221 (d) 3 program.

Seven story elevated structures were also analyzed for extra foundation costs. Calculations indicate extra monthly rentals of \$4.80 would result. Section 220 financing was



assumed in this case with each individual unit averaging 1,000 sq. ft. each. Extra foundation costs would be \$.90 per sq. ft. The resulting \$900 extra per unit was then amortized over a 40 year period at five and one-fourth per cent interest and 0.5 per cent mortgage insurance premium.

In the judgement of the consultant these rental increases fall within ranges that still keep the project marketable. In other words, comparative 221 (d) 3 units renting for \$75.00, \$85.00 and \$95.00 per month for one, two, and three bedroom units in other areas would still be marketable at rents ranging from \$80.00 to \$100.00 per month at Columbia Point.



## 6-1 Programming New Housing Construction

The consultant recommends the first phase be developed as garden type apartments for rent under the 211 (d) 3 program; followed by row house units which might best be developed as 221 (d) 3 cooperative or condominium units.

Higher (seven story) construction under the 220 program should be delayed until later stages following market experience gained in the initial development.

Construction of at least 200 units per year is recommended. Below this level economics of scale and market impact would be weakened.





	<u>Type</u>	<u>Total Units</u>	<u>Tenure</u>	<u>Program</u>	<u>Sequence</u>
1.	Garden Apartments	480	Rental	221(d)3	#1A-200 Units 1B-280
2.	Row Housing	550	Ownership	221(d)3 Coop. or Cond.	#2A-200 2B-250
3.	7-Story Elevator Units <u>1</u> /	490	Rental or Ownership	Minimum 220 Coop. or Cond.	#3A-140 3B-350
Total New Units		1,520			

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1/ Possible prior Co-op. for acquisition and private operation of one or more existing buildings at South End of existing public housing project.



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## 7. DEVELOPMENT COSTS

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Based on the unit costs provided by the engineering consultant and with additional information from the BRA Engineering Department, rough costs have been prepared for the major public improvements required for development of the Point, as outlined in the proposed development Plan. Not included in the cost estimates are the specialized recreational features such as tennis courts, and marinas proposed for the final stage of development.

Land acquisition, estimated at 3.5 million includes the cost of the site at the intersection of Mt. Vernon Street and the Strandway now owned by the Family City Development Corporation. It also includes the city-owned section of the dump.

Not all of the public costs itemized below need be included in a renewal project and some may not be completely eligible.



PUBLIC DEVELOPMENT COSTS FOR COLUMBIA POINT

Land Acquisition		\$3,500,000
Site Improvements		6,649,500
Grading	1,080,000	
Utilities	1,446,500	
Landscaping	725,000	
Beach, Boating Anchorage	749,000	
Rip-rap	1,054,000	
Peripheral Road	880,000	
Other Streets	165,000	
Street Lighting	550,000	
Public Facilities		1,925,000
Elementary School	1,825,000	
Bath House	100,000	
	TOTAL	<u>\$12,074,500</u>





B65R.F C.2  
Columbia Point  
Feasibility Study FS-89.

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